155-5 THE PROCESS

A journey of a thousand miles must begin with a single step.
Lao-tzu

The first step to be taken on the greener path to Rhode Island's future landscape is the definition, geographically, of the areas and features in its present landscape that are essential for the future. Identified and properly preserved, these elements then become the framework of the future greenspace and greenway system. Part Five describes the analytical process.

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The Greenspace project followed a straightforward, three-part methodology in delineating the future greenspace and greenway network:

❖ First, a values-based *critical geography* of greenspace was prepared, defining and mapping areas supporting the distinct values and functions of greenspace.

❖ Second, areas identified as critical to each separate value were combined to find *multi-functional greenspace resource areas*, the core areas of the future network.

❖ Lastly, *greenway opportunities* were identified linking the core areas to each other, to existing public open spaces, and to populated areas, forming an integrated network.

5-1 Technology and Data

The Greenspace planning process brought the latest resource data and the best available analytical technology to bear on development of a recommended greenspace system. It used the Rhode Island Geographic Information System (RIGIS), a computerized spatial database developed by the University of Rhode Island's Environmental Data Center and cooperating state agencies, and administered by the Division of Planning.

5-2 Methodology

5-2-1 Step 1: Defining Critical Geography

For reasons touched upon in Part One, it was imperative that the Greenspace and Greenways Plan be grounded upon a values-based approach to open space, one that embraced protection of as many of the distinct functions greenspace provides to Rhode Islanders as possible in a comprehensive assessment.

A Mapping Subcommittee of the Greenspace Advisory Committee (see Preface) was created in May 1991. Comprised of resource managers and researchers, the subcommittee worked with Division of Planning staff to identify key values of greenspace and to define discrete, mappable resource areas that support each of the values.

A highly detailed delineation of critical geography was originally agreed upon. It categorically ranked the relative significance of some 50 subsets of areas and resources contributing to four major greenspace valuation themes: public health, safety, and welfare; environmental quality; economics; and quality of life. These first criteria proved unmappable, however, given the status of data, techniques, and resource availability during 1991-92. This necessitated adoption of a simplified approach, utilizing criteria developed with a fuller understanding of operational and technical constraints. Revised criteria, devised late in 1991, recognized twelve geographic/resource types supporting six value themes--pure water, hazard avoidance, forests, agriculture, biodiversity, and recreation and culture.

The second version of the greenspace valuation criteria was successfully mapped using thirteen resource coverages (spatially-referenced datasets) available through the RIGIS. This process yielded composite coverages for each of the six value themes depicting geographic areas identified as critical to each.

The six valuation themes, parameters, and spatial extent of the critical geography defined and mapped for each are listed in Table 155-5(1). Critical geographic areas identified for each greenspace valuation theme are shown in Figures 155-5(1) and 155-5(2).

Scenic areas identified in the Rhode Island Scenic Landscape Inventory, such as Stillwater Reservoir, shown above, were included in the Greenspace valuation analysis.

Table 155-5(1)

Critical Geographic Areas Supporting Essential Greenspace Values in Rhode Island

RESOURCE VALUE THEME:
PURE WATER

Critical geography:

Public water supplies (surface)**:** Watersheds of existing surface reservoirs used for public supply.
Groundwater**:** All areas classified as "GAA" by the R.I. Department of Environmental Management; includes aquifers (reservoirs and recharge areas) and wellhead protection zones of community supply wells
Wetlands: All types identified in the RIGIS Wetlands dataset

Areal extent (combined): 307,000 acres Percent of state land area: 45

HAZARD AVOIDANCE

Critical geography:

Flood Hazard Areas: All "V" and "A" Flood Hazard Areas delineated by the Federal Emergency Management Agency

Areal extent: 107,000 acres Percent of state land area: 16

FORESTS

Critical geography:

Major Forest Tracts: All contiguous forested tracts greater than 300 acres in size, regardless of forest type, derived from the RIGIS Land Use/Cover dataset

Areal extent: 125,000 acres Percent of state land area: 18

AGRICULTURE

Critical geography:

Active Farms: All active agricultural land uses identified in the RIGIS Land Use/Cover dataset
Agriculturally-significant soils**:** All soils classified as "Prime" or "Statewide significant" agricultural soils by the U.S. Soil Conservation Service

Areal extent (combined): 217,000 acres Percent of state land area: 32

BIODIVERSITY AND WILDLIFE

Critical geography:

Rare Species: All critical habitats of federally or state endangered species, as identified by the R.I. Natural Heritage Program

Areal extent: 50,000 acres Percent of state land area: 7

RECREATION AND CULTURE

Critical geography:

Scenic Landscapes: All scenic landscape areas identified by the Scenic Landscape Inventory as "Distinctive" or "Noteworthy"
Historic Sites: All National Register Historic Districts
Archaeological Resources**:** All Archaeologically significant areas identified by the R.I. Historical Preservation Commission
Recreational Beaches: All major coastal beaches identified in the RIGIS Land Use/Cover dataset

Areal extent (combined): 145,000 acres Percent of state land area: 21

FIGURES 155-5(1)

and

155-5(2)

TO BE INCLUDED IN FINAL PLAN
AS PAGES 5.4-5.5

11x17 Fold out Color Plates

5-2-2 Step 2: Finding Common Ground

The delineation of critical geography revealed that upwards of 80 percent of the state's land area was critically important for at least one function of greenspace. While a significant finding, this left the dilemma of how to devise a greenspace network that was sufficiently focused, spatially, so as to structure a future landscape, while simultaneously affording protection to as much critical geography as possible. The solution lay, as is often the case, in finding common ground.

Two assumptions were made in the search to find the common ground of Rhode Island's valuable greenspace--those areas which could be considered most valuable, overall:

- that the social value of greenspace is additive: the more separate values or functions a particular parcel identifiably supports, the greater its value; and

- that there is rough equivalence to society among the different functional values of greenspace; that, for instance, a parcel critical for pure water should be equally weighted with a tract sustaining forestry.

Use of any yardstick for comparing the "apples and oranges" of greenspace to the "best" overall is fraught with perils. It is akin to asking a parent to pick her favorite child. But, for a number of reasons, the limited abilities of government and private greenspace protection efforts being not the least, such a focus is necessary if the vision of a future greenspace network is to be achieved.

Thus, for good or bad, the Greenspace analysis looks at "best" from a multi-functional basis. Its assumptions say that, all things being equal, the areas that do the most for us are the most valuable to us, and to those who will follow us. Admittedly, these precepts are challengeable; but the alternatives (setting priorities only within each functional category, setting no priorities at all) also present dilemmas[1].

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[1] The first assumption incurs a risk of wrongly discounting the social importance of greenspace which support only one or two value(s). It is not the intent of this plan that such areas be written off as unworthy of protection. To the contrary, the identification of areas as critical geography, and their very inclusion in the Greenspace analysis is recognition of their exceptional importance to the value they support, and an acknowledgement that they must be accorded protection if the values are to endure. From a single dimensional viewpoint, a parcel deemed critical as habitat for an endangered species is no less important to that species if it has no other coincident values than if it has five. It still must be protected and carefully managed if the species it supports is to survive.

The second assumption is equally arguable; but the alternative of setting differential weights on the broadscale social benefits of greenspace is also fraught with difficulties. For instance, many observers might instinctively presume lands supporting pure drinking water to be more valuable than those supporting, say, an obscure, endangered wild plant. But how much more? ...twice, three times? ...and who decides? What if the rare plant turns out to yield a chemotherapeutic derivative which cures cancer or AIDS?

A further methodological caveat: most of the data used in the Greenspace analysis to delineate critical geography and the best greenspace are terrestrially-oriented. They neglect, in some respects, the marine environment in general, and specifically, what many would argue is Rhode Island's most precious open space: Narraganasett Bay. This "oversight" was not felt to be critical, however, since the centrality of the Bay to Rhode Island's future, and the needs concerning its protection were being addressed by the Narragansett Bay Project.

The virtue of the Greenspace multi-functional definition of the "best" lies in its identification of common ground where disparate values and functions intersect. This will be key to directing the (habitually constrained) abilities of governmental and private greenspace protectors to where they will do the most "good" for the least effort. It illustrates where expenditure of limited resources will accomplish multiple objectives; where individual efforts can synergistically complement one other, multiplying their effectiveness. It provides the big picture in which all greenspace players have a stake, and which all should consider when ordering their individual, more specific objectives and priorities.

Identification of the "best" open space for the Greenspace and Greenways Plan was achieved via integration of the six thematic data layers, each separately having a value of one. While the Greenspace procedure was automated using RIGIS's ARC/INFO software capabilities, the approach is straightforward: a technological update of the "overlay mapping" pioneered by Ian McHarg and other early landscape ecologists.

The process used a simple ranking scheme that counted the number of separate value themes each parcel supported. The six thematic value coverages were integrated in an unweighted matrix, yielding a synthesis map indicating the number of open space values (0 through 6) present in any given parcel of land. (See Figure 155-5(2)(d) on page 5.5.)

The valuation analysis was performed on a regional basis for technical reasons relating to input dataset size and complexity. Analysis and mapping of an initial "test" region (consisting of Aquidneck and Prudence Islands) was completed in April 1992, and the map products were reviewed by the Greenspace Advisory Committee at a meeting in May 1992. Minor changes in the valuation analysis methodology and in presentation format were made, and the valuation analysis was completed for the entire state during the summer of 1992.

A statistical breakdown of the results of the statewide Open Space Valuation Analysis is given in Table 155-5(2).

Table155-5(2)
Results of Greenspace Valuation Analysis

AREAS HAVING...	Acres	% of state
No identified values	113,000	16.4
1 or more identified value(s)	576,000	83.6
2 or more identified values	297,000	43.1
3 or more identified values	93,000	13.5
4 or more identified values	18,000	2.6
5 or more identified values	1,200	0.1
6 identified values	< 100	---

Based upon the areal distribution of greenspace values, analysis of the regional valuation maps, and input from the Greenspace Advisory Committee, multiple resource value areas with three or more coinciding values were selected as representing the "best" greenspace--critical areas that would constitute the core of the recommended future system. These "3+" multiple resource value areas, are shown on Figure 155-5(3) as *Greenspace Resource Areas*.

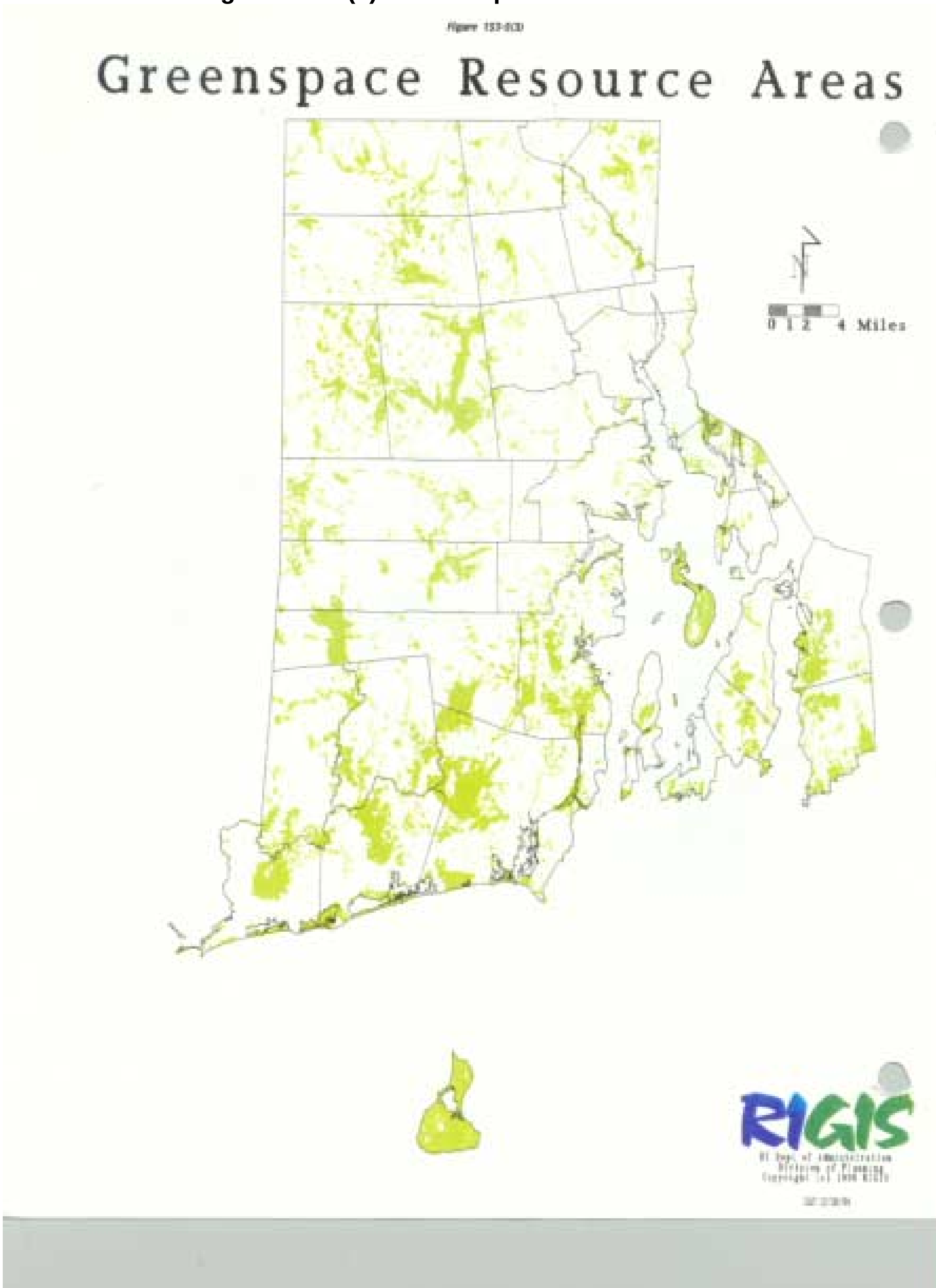
5-2-3 Step 3: Identifying Greenway Connections

The second fundamental goal of the Greenspace project was identification of a multi-functional greenway system that would link critical greenspaces, existing protected open space, and populated areas together in a unified network.

Development of the greenways component of the Greenspace plan was a joint effort of the Division of Planning, the Department of Environmental Management (DEM), Save The Bay (the state's largest private, non-profit environmental group), and The Conservation Fund (a national non-profit group dedicated to promotion of greenways). In late 1991, this consortium undertook development of a greenways concept plan for the state, for inclusion in the Greenspace plan.

For planning purposes, a functional topology of four classes of potential greenways was devised: natural corridors, bikeways, recreational trails, and scenic highways. (Identification of scenic highway opportunities was subsequently dropped from the Greenspace project, in deference to a more comprehensive study being undertaken by the Rhode Island Scenic Highway Board.) Both existing and proposed greenways were identified wherever possible.

Figure 155-5(3) Greenspace Resource Areas



Inputs

Inputs used in the delineation of greenway corridors for the plan included the following:

Greenspace linkage analysis:

The Division of Planning used maps of the Greenspace Core Areas (identified in the Greenspace valuation analysis), existing public open space, and developed land use to define potential greenway corridors, following major natural features where possible, which linked greenspace components together.

State agency greenway proposals:

The Rhode Island Department of Transportation's (RIDOT) draft Statewide Bikeways Plan and DEM preliminary plans for a North-South Trail were analyzed for their relationship and integration with the Greenspace plan.

Inventory of local government greenway proposals:

As part of the Greenspace Project a survey of local governments was conducted in 1991. Designated comprehensive planning coordinators were requested to identify local priority open space tracts and plans for greenways. The results of this survey were corroborated and expanded via interviews with local planning and conservation officials during the summer of 1992. Greenway proposals and local priority open space sites identified were mapped on U.S. Geological Survey 1:24,000 scale base maps.

Draft Greenways Concept Plan

An initial draft conceptual greenways plan was produced in late 1991 by (manually) combining all Greenspace project single-factor thematic mapping then available, local plans for greenways, nineteenth century urban parkways, scenic highway segments, and proposals for long distance hiking or bicycling facilities. This draft Greenways concept plan was presented in January 1992 at a statewide Greenways Conference sponsored by Save The Bay. Comments on the plan were obtained from many of the approximately two hundred persons in attendance. With additional support from The Conservation Fund, the draft Greenways plan was revised during summer 1992 to reflect comments received at the Greenways Conference, input from the Greenspace survey of local governments, and information from newly-completed local comprehensive plans.

Synthesis: Building a System

All greenway opportunities and plans identified were digitally entered into the RIGIS at the Division of Planning for further analysis with Greenspace resource areas and RIGIS databases of developed land use and protected open space.

For the final plan, potential greenways of the various types were reorganized into a two-level system reflecting differences in their scale and significance to the overall system:

- ❖ Major or state-system greenways were defined as corridors integral to unifying the overall Greenspace system.

- ❖ Minor or local-system greenways for the most part reflected corridors proposed by local governments, and generally involving only one or two communities.

Bikeway opportunities, such as the East Bay Bikeway shown here, were assessed in the planning process to link people to greenspace, while providing recreation and alternative transportation opportunities.

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